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ABSTRACT

To develop a conceptual framework for understanding the environmental variables that affect the impact of classroom television, the use of the instructional television series "ThinkAbout" (Agency for Instructional Television) was studied under natural classroom conditions using observations recorded as part of a series of studies conducted during the 1979-1980 school year. In order to provide conceptual organizers for the contextual factors identified in the study, findings were categorized by influences related to: (1) the school organization, such as pressures of accountability, the school schedule, and unscheduled interruptions; (2) the teacher, including preparation, teaching style, and enthusiasm; (3) the teaching process as an adjunct to the series itself; (4) the students, including their attitudes toward television as a learning medium and their expectations for television programs; and (5) influences of the distribution system such as dependency on public broadcasting station schedules and delays in receiving copies of the teacher's guide. The studies provided data on a rich variety of contextual influences, a clinical understanding of previously unmeasured individualized effects occurring in classrooms, and the finding that teachers are not a good source of data on how educational television is used. Fourteen references are listed. (LMM)

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THE IMPORTANCE OF CONTEXT WHEN STUDYING THE IMPACT OF INSTRUCTIONAL TELEVISION

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This paper was prepared while the author was in residence at the Educational Research Centre, St Patrick's College, Dublin, Ireland. It was presented during a symposium entitled, "New Technologies: Design and Measurement Issues", at the 1983 Joint Annual Meeting of the Evaluation Network and Evaluation Research Society, Chicago, Illinois, October 1983.

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THE IMPORTANCE OF CONTEXT WHEN STUDYING THE IMPACT OF INSTRUCTIONAL TELEVISION[1]

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In the evaluation of instructional television programs or series, studies that focus on achievement of certain well-defined instructional objectives may be placed into two general categories: (1) Those that study the potential effects of the program or series, under carefully manipulated conditions, and (2) those that study actual effects under conditions of natural use. The former studies are useful in the demonstration or verification of claims of what the program or series could/should be able to do; the latter in the discovery of what transpires under conditions of uncontrolled use.

In studies of the second type (Sanders and Sonnad, 1982; Cohn, 1982; Hart-Landsberg, 1982; Wolcott, 1982) we observed the use of a series developed by the Agency for Instructional Television under natural classroom conditions. One of our purposes was to discover contextual factors that appeared to influence the impact that the series had on students. Context was defined as the milieu in which instructional technology (in this case, instructional television) is provided.

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[1] This paper was prepared while the author was in residence at the Educational Research Centre, St Patrick's College, Dublin, Ireland. The author wishes to express his gratitude to Centre staff for their helpful comments on an earlier draft of the paper. This paper was presented during a symposium entitled, "New Technologies: Design and Measurement Issues", at the 1983 Joint Annual Meeting of the Evaluation Network and Evaluation Research Society, Chicago, Illinois, October 1983.

The purpose of this paper is to report what we discovered and to begin development of a conceptual framework for environmental variables that affect the impact of classroom television. This analysis should be useful in future evaluations by directing attention toward phenomena, external to the television program or series, that may affect student achievement. It may also serve to temper promotional claims that are circulated to potential users by developers of instructional television.

The Research Studies

The observations to be discussed in this paper were recorded as part of a series of studies of classroom uses of an instructional television series called ThinkAbout. The series was developed by the Agency for Instructional Television (AIT) in Bloomington, Indiana, and these studies were sponsored by AIT. The studies were coordinated by the Evaluation Center at Western Michigan University and were conducted during the 1979-80 school year.

As part of a larger research effort, we conducted six case studies of classrooms in Missouri and Oregon where the series was in use. Researchers conducting the case studies primarily used participant observation and interviews to generate their research data. The results were reported in three volumes of findings (that are published by AIT: Cohn, 1982; Hart-Landsberg, 1982; Wolcott, 1982).

The credibility of these case study findings may be based in part on the qualifications of the field researchers who observed

and reported on classroom uses of the series, and in part on the careful documentation and verification processes used in their research. All three researchers were experienced in natural field observation and were trained in anthropological/educationist traditions. They had completed several other case studies before engaging in this series of studies on instructional television. Moreover, they benefited from an orientation meeting held prior to entering classrooms,[2] frequent correspondence during the studies, and a midyear conference when findings, research methods, and new and interesting issues were discussed.

It would seem important to share our findings with other researchers/evaluators, so as to begin the development of conceptual organizers that may be used or modified in future evaluations. These contextual factors have been shown to have a potent moderating influence. We could not have anticipated which variables to monitor (or how to monitor them) before these case

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[2] The orientation included: (1) a description and rationale for the television series that was to be studied, accompanied by extensive background materials provided by the developers, (2) questions and issues identified by constituents and a literature search that served as sensitizers, (3) arrangements for regular and "at will" communication among field researchers and home project staff (based on the principle that many experienced heads are better than an isolated one in learning from field experience), (4) arrangements for transcribing tapes and other "clerical" tasks, (5) discussion of criteria to use in selecting classrooms and in deciding when to end a case study, (6) a sharing of thoughts about methods and scope for the case studies, and (7) a discussion of close to thirty foreshadowing issues that might prove to be relevant organizers once observations began. I mention this orientation in some detail because I believe it played a critical role in some of the "discoveries" I am about to report.

studies began. But based on them, I can report on the significance of experiencing the natural context of classroom television use and the possible implications of attending to context in the future.

This paper is not a report of the completed research studies to which I referred earlier; that research has already been reported elsewhere (Sanders and Sonnad, 1982; Sanders, 1983). Instead, it is an attempt to organize case study findings into a frame of reference which may be used in future studies of classroom television. The influence of context discussed here is grounded in data reported in the ThinkAbout case studies.

The cataloging of contextual influences on television instruction has not been completed, and we are therefore not yet close to being able to develop substantive theory (cf. Glaser and Strauss, 1967), models (cf. Bentler and Woodward, 1979), or even guides for measurement methods and instruments (cf. Crawford, Gage, and Stallings, 1977; Good and Brophy, 1973) which could be used in future evaluations. At best, our current state of knowledge allows us to begin the development of a crude checklist for qualitative field observation that should have broad relevance in future evaluations of classroom television. By beginning to catalog observed contextual influences, we can move toward theory and model building, as well as practical guidelines for evaluation. However such developments are dependent on the completion of a wider range of case studies wherein potent, operating contextual influences on outcomes are carefully documented and reported. As such, this should be considered to be a beginning conceptual effort.

Contextual Influences on the Effects of Instructional Television on Student Achievement (Drawn from the ThinkAbout Case Study Reports)

Context may be regarded of as an open system external to the television product being disseminated. Neither of the labels proposed by Boruch and Gomez (1979), i.e., "structural imperfections in program implementation" and "variation in program delivery and receipt at the individual level", seems to adequately cover the nature of contextual influences that may operate when a television series or program is used in the classroom. Such conceptual categories are simply too narrow to cover the multitude of sources of influence that have been observed to exist.

The list that follows represents a conceptual organizer for the contextual influences that manifested themselves in the ThinkAbout classroom case studies. Future field studies may record additional influences that were latent, unrecorded (because they were unanticipated or unobserved), or simply missing in the ThinkAbout case studies. The list is also at least three steps removed from the actual events.[3] The level of abstraction used in developing this list of contextual influences should lead to a frame of reference having far greater relevance than merely

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[3] Following Smith and Geoffrey (1968), the first reality is the actual flow of events, recorded by field researchers; the second is the interpretation and abstraction of the actual events by the field researchers in their reports; the third is my interpretation and conceptualization based on the ThinkAbout case study volumes.

for the six classrooms using ThinkAbout.[4]

How can context affect the learning outcomes of instructional television? Let us count the ways:[5]

A. Influences of the School Organization

1. The school principal, himself aware of accountability pressures on the school district, emphasized the importance of improving standardized test scores in reading and mathematics. The standardized tests measure skills that are outside the scope of the television series. The teacher using the series felt compelled to "get back" to skill development as quickly as possible after a television lesson.[6]

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[4] One might correctly argue that there are an infinite number of situational events that can occur when television is used in classrooms that will affect the outcomes of instruction. But, the list can be made manageable and can communicate the essence of the influence on learning by using a higher level of abstraction. For example, the concept of holidays as an interruption of program delivery eliminates the necessity of listing all intervening holidays, although it does mask the differential effect of each one (e.g., Christmas vs. Veterans Day).

[5] Each of the influences listed here were observed in classrooms using ThinkAbout and were reported in the AIT case study volumes. That is, they are known to have occurred. I do not believe they were isolated events.

[6] To illustrate, and to make this point more vividly, consider this statement from a teacher using ThinkAbout in one of the case studies: "I feel the pressure very strongly. Now this is the first year we didn't have a printed list of test scores with each teacher's scores, and their class average, listed separately, but I do feel that our principal bases a lot of his evaluation on a teacher's test scores ..."

Unfortunately, space limitations do not allow similar documentation to be provided for each point on my list. Such documentation must be found in the three case study volumes available from AIT. However, I will intersperse a few in this presentation for clarification and elaboration.

2. The teacher felt pressure to maintain a certain pace in the common curriculum. This pressure was partly placed on herself and partly based on a belief that teachers in upper grades and at the same grade level will judge her negatively if her[7] students should should fall behind. Hence, the common school curriculum "must" receive priority over new additions to her curriculum, even if this meant skipping some television lessons, or moving on prematurely.

3. The school schedule offered numerous opportunities to interrupt a regularly scheduled broadcast series. Holidays, teacher conferences and inservice days, and special school events such as parties occurred. The school day schedule also presented inflexible barriers to long segments of instruction - recesses and lunch periods, in particular, provided barriers to extended periods of problem solving activity, project work, and discussions. Some instructional segments that had potential for student gains had to be cut short because of the daily schedule. Although this can be said about any instruction, the problem is exacerbated by a regular broadcast schedule over which the teacher has no control. Placement of instruction using television after lunch, or right before lunch, after or right before recess, at the beginning of the day or at the end of the day affected the energy and attention brought to instruction.

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[7] The word "her" is emphasized here to reflect the ownership and autonomy observed in elementary classrooms. This is a phenomena that has been reported elsewhere (e.g., Lortie, 1975; Smith and Geoffrey, 1968).

4. Unscheduled disruptions of a regularly scheduled broadcast series were common. Teacher illness, during which a substitute teacher was introduced, produced a hiatus in program delivery. The introduction of a student teacher, who had mastered neither classroom management nor teaching technique, let alone use of instructional television and the series itself, greatly altered program delivery.

5. Even with a self-contained classroom in an elementary school, students were transferred for special instruction and study time according to a schedule that was independent of regularly scheduled television broadcasts. This meant that some students missed certain programs because of their current involvement in another school program.

6. The content of the television series was seen to be educationally important, and therefore also found in other instruction. It was then difficult to separate out (detect) the unique effects of instructional television.

7. The faculty in the school building had a group norm labeling the use of any form of media as a "cop-out", a fallback that requires little preparation, as entertainment rather than as serious task oriented instruction. This norm affected the way in which the teacher used instructional television (and hence, its effectiveness).

B. Influences the Teacher Brings

1. The teacher was unprepared to be teaching the content of the series due to little knowledge about the philosophy/rationale behind the series design and about the deep content of its

programs. This led to discussions that "missed the mark", and resulted in only surface coverage of the series content.[8]

2. The teacher brought a teaching style with her that was incongruent with the philosophy underlying the series. While the series stressed the notion of students working together as teams and also working independently to solve ambiguous problems, the teacher stressed learning of facts, short segments of instruction that precluded project work, lecturing to the class, little time for application of skills, and a higher priority on students enjoying the television time than on their cognitive development.

3. The teacher perceived television time as a break - a much-needed filler during the afternoon so that he had a chance to relax. This attitude did not go unnoticed by his students, who likewise did not take the programs as serious material to be learned.

4. Although the teacher had made a serious commitment to using the series at the beginning of the year, her personal interest in the series wore off as the year went on, and, concurrently, enthusiasm for the series waned as well. This was noticeable in the quality and length of discussions held late in the school year.

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[8] Consider a teacher's confession recorded in one of the case studies: "You know, I knew that introduction was not exactly right for this program, but it was the only way I could think of to tie it to their own experience ... and, you know, I'm almost ashamed to admit it, but I saw that program three times, but it wasn't until the end of the third time that I really saw what was happening at the end."

5. Some topics presented in the series were seen as too sensitive for further discussion (e.g., sex roles, religious issues, and race relations), and hence received little discussion once the program was over. Sensitive topics presented as subject matter in the series consequently received less attention than did other subject matter.

6. This was the first time the teacher had used the series and use tended to be mechanical and obligatory, following the Teacher's Manual to the letter. After having previewed the entire series over the first year, there was some conjecture as to whether the teacher would feel more at ease with the series in future years - tailoring, adapting, elaborating on the subject matter and hence providing more effective instruction.

7. The teacher checked the reactions of her students to the series before commiting herself to extended use. It was only after having seen that students were enjoying the programs that she invested more time in related instruction.

C. Influences from within the Teaching Process (As an Adjunct to the series itself)

1. The teacher had little enthusiasm for preparing lessons making use of the television series. Discussions and discussion questions were generated on the spot, reflecting poor pedagogy. "I just watch it with the kids and punt from there".

2. The teacher gave no assignments, no tests on the subject matter of the series, no projects, and gave no grades for ThinkAbout units. Teacher introduction of a program, viewing

of the program, and a short discussion by students of personal events that seemed to be related to the program constituted ThinkAbout lessons.

3. Students lacked the "big picture" for the series. Each program was treated as an independent and discrete event. There was no attempt to review, or to organize student thinking. Continuity was lacking.

4. The power of the treatment was diluted by distributing programs over the school year. Two instructional segments of less than 60 minutes per week in the context of a crowded week of segments on other subject matter, and out-of-school events, worked against consolidation of concepts (the cognitive development that was desired). In the great scheme of things for a fifth grade student, the series was insignificant.

5. Classroom discipline broke down during discussions following the program with the student teacher. While quiet attentiveness was the rule when the television set was turned on, anarchy developed as soon as the "off" button was pushed.

6. The teacher forgot to turn on the television set three times during the first month of the series. Thus, those programs were lost.

D. Influences the Student Brings

1. Having grown up with television as entertainment at home, there was a group belief that television was not for learning. It was perceived as a break, as "down time" when one could relax.

2. One student after another related personal anecdotes during discussion time following a television program. It was evident from both verbal and non-verbal behaviors that few students were listening when another student talked. No matter what comments the teacher made about what was said, the point was thus missed by most students. There was great competition for the floor among students, i.e., they liked to talk. Little listening was observed, while another student was talking.

3. Students had very definite expectations for television production, and when their expectations were met, attention to the set was at a high level. When expectations were not met, attention was seen to wander. For example, students wanted programs with a clear story line. Programs that did not have a story were observed to have less interest value than those that did.

4. The developmental state of students in a fifth and sixth grade classroom was seen to affect their viewing behaviors and, as a result, what they learned from the series. A group of students who had higher than normal energy levels had trouble attending to any subject beyond a certain length of time. There seemed to be a cut-off point beyond which task-oriented work on any topic, not just the series, would cease. This limited attention span coupled with an apparent lack of readiness for abstract algorithms limited the effectiveness that the series could have with them.

E. Influences of the Distribution System

1. The series was transmitted to classrooms primarily via regularly scheduled broadcasts from public television stations. This broadcast system introduced two influences on the effectiveness of the series: (a) out of sequence broadcasts, and (b) poor quality reception. The first, out of sequence broadcasts, was seen as a significant factor affecting the series by some teachers, and as insignificant by others.[9] The second factor seemed to be related to geographical location.
2. Some states were lax in shipping Teachers Manuals to teachers who were using the series for the first time. Hence, they were "flying blind" for a part of the year, unable to anticipate program content or prepare lessons.

Discussion

There are other ways in which the context of instructional television use can affect its instructional effectiveness, and we need to continue to catalog these influences. Our field studies contributed greatly to our understanding of the impact of classroom television by capturing and reporting external influences that we would not otherwise have been able to consider. The case studies not only allowed us to gain insights into the reality of classroom

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[9] Significance to one teacher is reflected in the following note given to a project staff member: "Since the beginning of 1980, the following programs have been repeated ... (list of eight programs, one of which was repeated three times) ... My class has lost interest and no longer looks forward to Tuesdays and Thursdays at 10.15 a.m."

uses of the series (thus helping us to generate credible explanations for outcome measures that we had taken), but they also gave us data from which we can begin to generate conceptual organizers that will have far broader relevance in future evaluations of ITV.

We could not have learned about the rich variety of contextual influences listed in this paper in any other way. This alone attests to the importance of studying context in evaluations of instructional television. Berman (1981) was correct when he stated, "Events occurring after the adoption of a technology determine outcomes to a large extent, and these events cannot be accurately forecast from the content of the technology itself." (p.261).

There were other benefits that came from including a case study component in our studies. One was a clinical understanding of individualized effects which were occurring in classrooms, and which were not being measured by our measurement instruments. This understanding will in turn guide us in future studies as we attempt to improve on the validity of our outcome measurements.

We also learned that teachers are <u>not</u> a good source of data on how television is used in the classroom. In some instances, teachers were not aware of the way the curriculum was being molded by contextual influences. In other instances, they were very aware, but they would not have exposed to public view what they saw as their personal failings. They could not be detached, for they

had a stake in all curriculum decisions. They did not have the academic world-view that educationists and trained observers bring with them. Again, what we learned about life in a classroom with ITV from first-hand experience could not have been learned in any other way.

As we move into other studies of instructional television this list will help us to design studies that control for part of the context (e.g., influences of the distribution sytem) and that include steps for monitoring others. We can also become sensitized to the need for discovering and documenting influences on the outcomes of instruction which are not evident yet in our literature. There will always be irregularities to be documented and linked to outcomes. There are also likely to be regularities yet undiscovered that have great explanatory value. Here again field studies of the type used with ThinkAbout have much to contribute.

We should continue to generate case study reports and trust that creative and energetic minds will use their details to conceptualize other configurations of the data that help us do a better job of understanding instruction using technology. This is the promise and the potential of field studies in natural context.

In closing, I would like to share two quotations that I believe reflect very well the state of the art of research and evaluation in instructional television and the need for context

studies. Both were published in 1975, but I believe they are equally relevant today. First, an observation by Joyce (1975):

> In examining the literature related to media and education, it is clear that teachers are interested in using media, and that the equipment is available. Unfortunately, the literature is incredibly weak with respect to the behavior of the teacher when dealing with media.
> (Joyce, 1975, p.103)

Our field studies of classrooms where television was being used directly addressed this gap in our knowledge.

Finally, an observation by Lortie (1975):

> Changes are proposed and initiated without some knowledge of the settings they are presumed to improve. Without a clear picture of school reality, efforts at rationalization can dissolve into faddism and panacean thinking.
> (Lortie, 1975, p. viii)

I believe our ThinkAbout case studies have had a sobering influence on our thinking about the natural use of classroom television, and its potential for student development.

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